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The British Veterinary Association

THE Guest of Honour at this year's annual banquet was the Earl St. Aldwyn, T.D., Joint Parliamentary Secretary, Ministry of Agriculture, Fisheries and Food. In proposing the toast of The British Veterinary Association, Lord St. Aldwyn said:—

"As you know, Mr. President, the Minister would have liked to have been here to-night, but could not manage it because of other, and very pressing, commitments. Therefore, on this occasion, I am what the film people call a 'stand-in.' I hope you will not be too disappointed.

" You, Sir, and your Association, have every reason to be proud of the status and achievements of veterinary surgeons in this country. I am myself very glad indeed of this opportunity to pay my tribute to them for the very fine work they do, often in the face of extreme difficulty—as we in the Ministry know so well from our constant contact with them. Over the years, the profession has rendered a very great service to the agricultural community, and it is rare indeed for one of our veterinary officers, when calling on a farmer, to be greeted otherwise than as an old friend who has come to help, even although that help may have to take the form of compulsory slaughter of some, perhaps all, of the stock on the farm. This mutual respect and trust is something we greatly value. Without it, our animal disease control would not be anything like as effective as it is.

"As in the field of human disease, there are ups and downs, but I think the picture as a whole is one of steady and sustained progress. Bovine tuberculosis, in particular, is well on the way to being eradicated. The rate of attestation during the past year or two has perceptibly quickened, and to-day no less than 65 per cent. of all our cattle are attested. This has not been accomplished without tremendous drive and effort on the part of veterinary surgeons in private practice as well as in the State service. I know their goal is one huge attested area covering the whole country; and I am sure they will reach it before very long. Then they will be able to turn their attention to other pressing problems—and one I have in mind is Johne's disease—which I hope will be tackled in the same spirit of goodwill and co-operation.

"The control of disease is a team job, and that is how we have managed to do so well with tuberculosis. A great deal of research work into tuberculin has been necessary; that is where the laboratory staffs have carried out their essential role. The field staff have searched out local problems; while the local veterinary inspectors have been entrusted with a very large part of the testing itself. Co-ordinating the whole operation, giving advice and encouragement where necessary, and planning for the future, have been the responsibility of the senior veterinary officers and administrators at headquarters, who, incidentally, have to cope with the mass of paper work which I am afraid seems to be inseparable from a national scheme of this kind. Some of you may think the various forms are formidable enough in blank. I assure you that they are nothing compared with the completed forms. And, finally, the farming community who, after all, are at the receiving end of all this, have been extremely helpful and co-operative.

"There is another side to the work of our Animal Health Division which is sometimes a little obscured by the more obvious forms of disease control which hit the headlines more often. They have to administer a complicated series of Orders—those regulating imports of meat and other animal products and also imposing detailed conditions for the transit of animals, so that they may suffer the very least possible hardship. Incidentally, I doubt whether there is any country in the world where more attention is paid to the welfare of animals in general than here in Britain. In all these matters we rely on the advice and guidance of veterinary officers. We sometimes have to put some pretty queer questions to them. Only recently we felt sure we had at last bowled them out. The Diseases of Animals Act empowers the Minister to extend the statutory definition of 'animals' to any other kind of four-footed beasts. We wanted to know whether monkeys had four feet, two hands and two feet, or four hands. But, as usual, the C.V.O. came up blandly with the right answer. I have a feeling, however, that he flashed an SOS in the direction of Regent's Park!

THE ANNUAL BANQUET

At the centre of the high table are shown, left to right, Professor Pugh, Mr. L. M. du Pré, Vice-President of the National Farmers' Union, the President, and Lord St. Aldwyn, Parliamentary Secretary to the Ministry of Agriculture.

"These, then, and the veterinary surgeons up and down the country with small-animal practices, are the kind of people whose interests are so very much the concern of the British Veterinary Association. You, Sir, have occupied with distinction the place of honour in the Presidential Chair over the past year. We in the Ministry take a personal pride in your successor-designate, because he is one of our own Superintending Veterinary Officers. We wish him well.

"I think I can say without any hesitation whatever, and without any reservations, that the relations between the profession and the Ministry are most cordial. In the nature of things, we cannot expect to see eye-to-eye with each other on every single matter. On those odd occasions when we are not in agreement, we in the Department feel that at least you see our point of view, just as we see yours. We are grateful to you for the co-operation, help and advice you always give us so readily.

"Ladies and gentlemen, I thank you on behalf of all your guests for your kind and generous hospitality to us to-night. It is with very great pleasure that I give you the toast of the British Veterinary Association, coupled with the name of its President, Mr. Edward Wilkinson."

THE BANQUET

A LARGE gathering, representative of all branches of the profession, together with their ladies and a number of distinguished guests, assembled at the Leofric Hotel, Coventry, last Wednesday evening to enjoy the Association's annual banquet. The President and Mrs. Wilkinson received their principal guests in an upper foyer, after which Mr. Wilkinson presided at the high table, with the Earl St. Aldwyn, T.D., Joint Parliamentary Secretary to the Ministry of Agriculture, as his guest of honour.

After the loyal toast, Mr. E. R. Callender, O.B.E., the President-elect, in proposing the toast of the Borough of Royal Leamington Spa, said:—

"It is my privilege this evening to propose this toast, and it is a task I approach with considerable pleasure. I should be greatly assisted if I were able to tell you that I have long been familiar with the charms of Leamington and its surroundings, but let me confess at the outset that my first visit to Leamington occurred as recently as last autumn. I have, however, visited the town on several occasions since, so that part of my education has now been completed. I may say that the correspondent in our weekly journal who said of Leamington that it is 'as fair and attractive an inland resort as one could wish to find' in no way overstated the case.

"I am sure I am voicing the opinions of all of you when I say that Leamington has provided us with a most excellent setting for this, our 74th Annual Congress. The housing of congresses is no new experience to Leamington. I attended the Royal Society of Health's congress earlier this year and was informed that the first annual congress of that august body was held in 1893 at Leamington.

"The fame of Leamington as a spa has long been recognised. I think the medicinal qualities of its waters were first appreciated some time in the 15th century. Anyhow, it is on record that the celebrated

John Ruskin visited the town in 1843 to undergo a course of its waters extending over some 42 days. Whether the modern veterinary surgeon would be able, or even willing, to imbibe waters for 42 days is a matter for some doubt. There is no doubt, however, that Ruskin did derive very considerable benefit, for at the end of his 42 days his medical adviser, that eminent physician Dr. Henry Jeffson, was able to dismiss him with the words, 'Sir, you may go—your health is now in your own hands.' This prompted Ruskin to remark, 'Truly my health was in my own hands and I was able to revert in perfect health to brown potatoes and cherry pie.'

"It is on record also that Charles Dickens visited the town from time to time and, according to the scribe, delivered readings from his 'Sketches by Boz' to large and cultured audiences in the old Assembly Rooms on the corner of Regent Street. So Leamington has very definite literary connexions. It has also other claims to fame. In 1923 it returned as its Member of Parliament a young and comparatively unknown politician who has since achieved very high distinction. That same politician still represents it after 33 years—surely a remarkable tribute to the wisdom and political stability of Leamington and Warwick.

"Since coming to Leamington we have been greatly touched by the warmth of our welcome and by the wonderful friendliness we have encountered on every hand. We are grateful to you, Mr. Deputy Mayor, for all that you and your officers have done to ensure the success of this Congress. We were delighted to have the pleasure of your company on Monday evening when we spent a most delightful evening, and I think we left you in no doubt as to how much we appreciated the pleasure of your company on that occasion."

Councillor E. Lucas, Deputy Mayor of Leamington Spa, whose name had been coupled with the toast, said in reply:—

"In 1790 there were fewer people living in Leamington Spa than are attending this Congress. However, very shortly after the discovery of the excellent properties of the gushing streams which were coming into Leamington, and after a particular article had appeared in a certain Manchester journal, written by a doctor, two men quickly set their minds to work to see how best they could cash in on this wonderful thing which had appeared in Leamington, and between the years of 1810 and 1830 there began a most vigorous and flourishing expansion of the town. Land rose in price in the centre of the town from £60 an acre to £5,000 an acre in a very short space of time, the latter in those days being a fairly colossal sum of money.

"Immediately many families, some of them fortunately rather wealthy, flocked into Leamington to take the waters. However, the development of the town was not haphazard because even to-day we are very proud of the town planning that went on at that time, 120 or 130 years ago, which produced some of the very fine squares and the broad avenues that we have in Leamington. It soon became the fashionable watering place of the country.

"This modern age sees Leamington in a new light, and I hope in view of the proposed development which is going on, that we shall not lose the charm which I believe Leamington has held for over 100 years. I shall long remember the friendliness of the members of the British Veterinary Association on the occasion of your visit to us this week, and I hope you will carry away memories of your stay."

The Toast of the B.V.A.

The toast of the Association was then proposed by the Earl St. Aldwyn, and in reply the President said: "We are honoured, my Lord, in having you with us at our annual banquet. On behalf of the British Veterinary Association I thank you most sincerely, not only for the understanding and kindly way in which you have referred to our Association in proposing its health, but also for the personal effort you have made to be here with us to-night in Coventry.

"The Department of Government which you represent is, as you have said, the Department with which we as an Association are most concerned. Indeed, does not the Ministry of Agriculture employ in one way or another some 2,100 of us? You may be very sure that we are going to be on our best behaviour this evening! We may need the help of a friend at court, particularly at a time when the Association is about to discuss the possibility of an increase in fees payable to those of us engaged part-time by your Ministry!

"The manner in which your veterinary staff in the Animal Health Division carry out their duties, often under very great difficulties, is admired by all who understand the problems they face. In my home district during these past few weeks we have been somewhat worried by a number of outbreaks of foot-and-mouth disease. At one time the outlook was ominous. It seemed to an amateur like myself that we were likely to see a most serious epidemic develop. So good were the arrangements, and so expeditiously were tracings of possible contacts carried out that it is now reasonable to expect, as far as the Derby outbreaks are concerned, that we are well on the way to seeing the stifling of this particular visitation. Two thoughts relating to this scourge of foot-and-mouth disease often occur to me and I feel particularly proud about both of them, about the first as a member of the veterinary profession and as to the second as a farmer's son.

"The one is concerned with the attitude of those members of our profession who are in general practice. In fact, it usually inflicts quite heavy financial loss on us for obvious reasons. Consider the effect on our financial condition were we employed in routine protective vaccination against foot-and-mouth disease. Even tuberculin testing would pale into insignificance. Yet, as far as my memory goes, no Division of this Association has ever done other than record unanimous support of the official slaughter policy. It is that very unanimity which has always given me a feeling of pride in my profession.

" The other aspect of our foot-and-mouth policy, which gives me no less pride, concerns the attitude of the overwhelming majority of the farmers themselves. You have yourself, Sir, referred to this, but I should like to underline what you have said. Their co-operation in face of heart-breaking misfortune is probably little realised by town dwellers. The farming community as a body understand the value, under present circumstances, of the slaughter policy to the economy of this country. Nevertheless, when a long-cherished herd of animals might have to be wiped out it would be understandable if delay in reporting suspicions were commoner. In fact, I believe such delay is quite rare.

The Eradication of Tuberculosis

" My Lord, your Ministry's Animal Health Division, and its predecessor the Diseases of Animals Division of the old Board of Agriculture, have very much to be proud of. The very excellent progress of the scheme for the eradication of tuberculosis from our 9,000,000 cattle, the complete eradication of sheep scab, the freedom of these islands from rabies, the eradication 30 years ago of glanders—that dread disease of both horses and mankind—these are matters of common knowledge. Yet there are more than enough serious problems awaiting solution. As long as it is necessary for this country to import foods of animal origin it will be impossible to exclude completely animal diseases which are largely uncontrolled in many other countries.

" You have mentioned the rôle of the veterinary surgeon in private practice in relation to the scheme for the eradication of tuberculosis. I am pleased that you did so. The very great deal of time which has to be spent by the private practitioner in discussing and advising his farmer clients on this particular matter is no one's business. This is one of the duties which we perform about which there can be no question of any increase in fees as in fact in the great majority of cases no fee is charged.

" I have already spoken of farmers, and I should like to refer to those most important organisations to which the Minister of Agriculture finds it so necessary to make humble obeisance, the National Farmers' Unions of this realm.

" Perhaps at this moment, ladies and gentlemen, I should tell you that Sir James Turner, who as you probably know was to have been with us, has unfortunately been unable to come. We are fortunate in having Mr. du Pré with us, on my right. I did get a letter from Sir James this morning and, among other things, he says that circumstances definitely preclude him from joining us. He says, further on,

THE OFFICERS OF THE ASSOCIATION WITH THEIR LADIES

Left to right (back row): Mr. J. M. Ingram, Mr. E. R. Callender, the President, Professor A. Robertson and Mr. H. E. Bywater. Seated left to right: Mrs. Ingram, Mrs. Callender, Mrs. Wilkinson, Mrs. Robertson and Mrs. Bywater.

' Please convey to the members of your Association, and to your guests, my very great personal regrets at being unable to be with you. I am extremely sorry about this and I had looked forward to renewing my association with your profession, for I recall my last very pleasant visit to your Congress in Harrogate.'

" This Association has usually had very cordial relations with the National Farmers' Unions. There may have been occasions when we have indulged in not too important differences of opinion; but as far as the past year is concerned it would seem that we agree on all points because not once has either of us asked for discussion by our liaison committee on anything at all! I should just like to congratulate the representatives of the Farmers' Unions for the support they gave the representatives of the veterinary profession on the question of the use of antibiotics in feeding-stuffs. I am sure they acted wisely in asking, with us, that any amendment of the regulations be deferred pending further experimental work.

" In lighter vein, may I relate an experience in my own household which might perhaps point a moral in this difficult question of antibiotics in animal feeding-stuffs. I would have you know that my wife has, this past year or so, set up tanks of tropical fish, and very soothing it was for some six to eight months to sit and watch their gentle activities while taking an evening cup of tea. Then the spectre of disease, or so we were informed, raised its ugly head. As a veterinary surgeon I was expected to produce something out of the hat; as a husband I would have none of it. However, news of the grave situation filtered through to my colleagues in the practice, and the information was vouchsafed that we had documentary evidence in the form of a manufacturer's leaflet that a certain antibiotic was 100 per cent. prevention and/or cure when added in certain quantities to the water in which our patients lazily lolled about. I swear to you that the quantities added were as advised in the literature. Nevertheless, of 28 relatively happy little fishes, within 24 hours only three survived. I am sure that there must be a lesson somewhere. I wonder, could it conceivably be possible that not even the manufacturers of antibiotics know all the answers yet?

The Congress of 1905

" I feel that it would be a pity at this time to omit a mention of those of our Association who visited the National Veterinary Association's annual conference at Buxton in July 1905. Quite a number of familiar names appear in the accounts of their doings which appeared in THE VETERINARY RECORD of that time. Mr. R. C. Trigger of Newcastle under Lyme was the President of the Association. Mr. Joseph Abson, President of the Royal College of Veterinary Surgeons was one of the distinguished company, which included also Professor M'Fadyean, very soon to be knighted. One notes with some nostalgia the name of Mr. William Woods, one presumes of Wigan. Another name which brings quite particularly warm memories to some of us is that of Mr. H. J. Dawes, father of our own " H. W." Mr. Hickes, of Market Weighton, was unavoidably *hors de combat* at that time and therefore unable to attend. Could it really be that same Mr. Hickes who helped us on to the Register of the R.C.V.S. 20 years later?

" It is amusing to read Mr. Hunting's admonitions to members not to delay further over the securing of accommodation and booking of places at the banquet and so on. Human nature changes not at all. He writes, ' Each man's modesty is apt to suggest that he will not be missed if he stays away, or cause inconvenience if he attends without notice; this is most fallacious reasoning and leads to confusion and trouble.' He goes on to say, ' In the excursion to Connemara last year members were so dilatory over their reservations that bedrooms had to be shared in some cases by three or even four persons.' Just imagine four vets. in one bedroom! Whenever did they get to sleep? And in Connemara too. As the Irishman said when he was asked why the Irish have a reputation for being quarrelsome, ' Well, you know how it is with us. Some of us are Catholics and some of us are Protestants. If only we were all pagans we should be happy as Christians!'

" And now, before I sit down, may I with your indulgence take this opportunity of turning to the members of our B.V.A. Council to say a simple ' thank you ' for their kind treatment of me while occupying the President's chair? Further, may I thank each committee chairman for the job of work which each has done? I can tell the members of this Association who do not perhaps keep so closely in touch with Council affairs as they might, that these are a really grand team; and in so speaking I am in no way indulging in exaggeration."

" Our Guests "

Mr. S. V. Collard, in proposing the toast of Our Guests, said:—

" I crave indulgence for a maiden effort, admiring as I do the competence and lack of nervousness of the previous speakers. It is my privilege, as President of the Midland Counties Veterinary Association, and as joint host together with the East Midlands Veterinary Association to this year's Congress, to propose the toast of Our Guests. We are delighted and honoured to have them with us to-night. This profession is fortunate in many things, but most of all it is fortunate in its friends, and it is in that spirit we welcome our guests to-night.

" Lord St. Aldwyn, we thank you not only for so kindly deputising for the Minister, but also because we greet you most warmly for yourself. You have shown on many occasions a most generous appreciation of the work of our profession. A substantial number of us, of whom I am one, are in the Ministry's service, and the cordial relationship which exists between us is a matter of growing pleasure. The contribution that we make to the well-being of the community could not be made upon the scale it is without the Minister, Parliamentary Secretaries, and others, being men of such calibre as enables our work to expand and progress in the fullest degree. We ask you to bear our cordial greetings to the Minister, whose presence we miss but whose absence has allowed us the privilege of your company to-night. We also welcome from the Ministry Mr. Manktelow.

whose name I have known for so very many years, and whose knowledge of the inner workings of the Ministry must be very considerable.

"Mr. Deputy Mayor, you, in common with our guest of honour, are, in a manner of speaking, representing another. I know I carry our Association with me in saying that no more generous and gracious a welcome could have been afforded to us than that which has been forthcoming from yourself and the Corporation of Royal Leamington Spa. No civic authority could have made our stay in Leamington Spa more enjoyable. You will, I hope, agree that the spontaneous acclamation we gave you on the night of your reception was a very true feeling of our appreciation.

"The veterinary profession is an international one, and for that reason we are especially happy to see colleagues and to greet the representatives of friendly governments. We welcome Lieut.-Col. N. A. Lasher, representing the American Veterinary Medical Association. We shall never forget the great things America did for us during the war in supplying materials in general, and in particular in supplying materials for our profession which enabled us to control diseases that might have been very dangerous in that time of stress. We shall never forget.

"We are pleased to see Dr. Knud Eriksen, representing the Danish Veterinary Association; Mr. L. N. Thornton, representing the High Commissioner for Australia and the Australian Veterinary Association; Mr. C. V. Dayus, representing the High Commissioner for New Zealand; Dr. B. C. Jansen, representing the Division of Veterinary Services, Union of South Africa; and Professor Dr. A. de Vuyst.

"We are so glad to have with us the representatives of those whom I may call our principal clients and our very good friends, the farming community. As an Association we work in the most friendly and fruitful co-operation with the National Farmers' Union. We are, therefore, very happy to have at table the Vice-President of the National Farmers' Union, Mr. L. M. du Pré and the Chairman of our local county branch, Mr. Pennell. May I at this moment thank him for all the co-operation I have received from the chairmen, committees, and officials of his branch? We have one thing in common; the eradication and prevention of disease.

"May I link with these names in the world of agriculture the President of the National Cattle Breeders' Association, Mr. M. C. J. Allday; Mr. Hedley Harding, the President of the National Pig Breeders' Association, who is not only known so well locally but also nationally for his herd of Large White pigs; the President of the Warwickshire Agricultural Society, Alderman J. H. Steele; Mr. S. W. Cheveley, Chairman of the Farmers' Club; and Alderman H. W. Hughes, Chairman of the Warwickshire Agricultural Executive Committee?

"May I say that Mr. Hughes is also Chairman of the Agricultural Section of the Warwickshire Education Committee and it is due to him that we had such a successful day yesterday at Moreton Morrell? I would ask him to convey to all those at Moreton Morrell Institute our very great appreciation of all they did on that occasion. Perhaps some of you saw the initial chaos there when they were invaded by technicians with television apparatus and wires; and then they were eventually invaded by over 400 veterinary surgeons and their ladies; but the Principal of the Institute did not turn a hair. We were all accommodated, and I think you will agree we had a most eventful day, on which for the first time close-circuit television took a part in the work of our profession.

"There is a close and cordial association between the British Veterinary Association and the Royal College of Veterinary Surgeons, and we are honoured to have here the President of the Royal College, Professor Pugh, and Mrs. Pugh, together with Mr. Oates the Registrar.

"As I have said previously, we are fortunate in the friends we have, and there are none we value more highly than those of the sister profession of medicine. Later this week we are to discuss a most interesting and important paper by Dr. Arblaster and Dr. Prior. They are among our guests here to-night, together with the President of the Leamington Spa Medical Society, and we are happy indeed to see them.

"None of our acting Orders, Mr. President, would have any great effect unless it was administered efficiently. We have with us to-night Mr. W. S. Howard, Chairman of the Warwickshire County Council, and Mr. Edgar Stevens, the Clerk to the County Council, whose Council so readily and effectively administers such Orders as those made by the Ministry of Agriculture. It may not be known to you all that Mr. Stevens at one time steered the Cambridge crew successfully from Putney to Mortlake. Those of us interested in steeplechasing will know that he must have gone the shortest way home, as he does in his many local authority activities, still steering the same straight course and keeping us on the right lines.

"I must mention also Alderman Arthur Tickle, Chairman of the County Council Small Holdings Committee, who deals with diseases of animals work. Mr. Tickle does a great deal of public work and if there is a more efficient farmer I do not think I have met him. Those who are fond of dairy Shorthorns would be much impressed if they saw those belonging to Mr. Tickle.

"As a member of the State Veterinary Service I know one should not praise one's family in public and I hope I may be excused. There has, however, been some praise accorded to our Animal Health Division during this week, and such praise is reflected upon the entire veterinary profession. Thus I extend our greetings to the two pillars, may I call them, of that Division. I refer to our Chief Veterinary Officer, Mr. Ritchie, and to Dr. Stableforth, Director of the Veterinary Laboratory at Weybridge.

"There is one branch of the profession which is held in the highest esteem by all of us. Its numbers have diminished but they have a great tradition. I refer, of course, to the Royal Army Veterinary Corps. We are privileged to have among us to-night Brigadier Ralston, Director-General of the Army Veterinary and Remount Service, and I acknowledge him in all our names.

"AT HOME"

In this informal picture the President and Mrs. Wilkinson are seen with the President of the East Midlands Division and Mrs. Denholm (left) and the President of the Midland Counties Division and Mrs. Collard.

"I have probably made omissions, but this Congress is of limited duration, so let us drink to the health of all our distinguished and welcome guests."

Mr. du Pré's Reply

Mr. L. M. du Pré, Vice-President of the National Farmers' Union, in replying, said:—

"May I first endorse what your President said about my President, that he really was very sincere in his regret at not being able to be here to-night? I left him only this afternoon and he asked me to convey those sentiments to you. His loss is my gain, but I am afraid not yours.

"Between the members of your Association and those of mine there is at least one feature that is common, in that we never know when our day's work will end. Another common feature that comes to mind is that we are of course both interested in the health and virility of farm live-stock. Our lines to this objective should continue to be in co-operation as far as it is possible.

"In recent years there have been considerable advances in veterinary science. Your President has been relating to me his experiences since he started in the profession. The discovery of penicillin, with its application to farm use, the discovery of the sulpha drugs, and the subsequent developments, have been of very powerful help in the fight against disease in our farm live-stock.

"The developments have been wide and they have brought about a certain amount of confusion as to the most satisfactory methods of use and distribution. If the new knowledge and facilities which are now at our disposal, and others which may follow, are to be applied to the greatest advantage of the farming industry and subsequently of the consuming public, it is important that these questions should be given fair and completely frank consideration. I am sure there are now good grounds for a greater and more frequent use of the liaison machinery, referred to by your President, which does already exist between our two organisations, and which I hope will be to our mutual benefit.

"Lord St. Aldwyn referred to the results of the Attested Herds Scheme, the success of which both farmers and veterinary surgeons can congratulate themselves upon. Excellent progress is being made in the free testing areas. Whether the progress will continue at its present rate or not it is difficult to say, because we must remember that the nearer we get to the goal, the nearer we get to that hard core of individuals who, either from lack of interest or because of expense, have not as yet made any attempt to join the Scheme.

"There is little doubt, I think, that the 'vets' and the farmers, working in co-operation, have made progress far in advance of anything anticipated in regard to eradication of tuberculosis from the herds of the country. This reflects a very happy co-operation between the farmers and the 'vets' down on the farm.

"The farming industry at the moment seems to be rather in a state of 'rock 'n' roll!' On the live-stock side the beef returns to producers have been suffering from the rolling average, which very few people seem to have mastered yet. We have been

(*Concluded at foot of col.* 1 *overleaf*)

A Successful Innovation

For the first time at a B.V.A. Congress, operative and other techniques were shown to a large audience by means of close-circuit television. The accompanying pictures make clear the method of transmission of the pictures, the cameras and microphone being in the stable block of the Moreton Morrell Institute, about 300 yards from the main building. About a dozen viewing sets were used, so that a separate audience could be seated before each. In point of fact the televised proceedings proved such an attraction that nearly twice as many delegates as had been expected were present. On another occasion it would be advantageous to raise the viewing sets above eye level so that they could be the more easily seen; but for a first attempt the close-circuit method of demonstration proved remarkably successful.

The programme was as follows: Laparotomy of the dog by paramedian approach and reflexion of the rectus muscle. Bowel resection and end to end anastomosis: Mr. Gordon Knight assisted by Mr. R. C. Frost. Acid firing for sprain of the flexor tendon in the fore-limb of the horse: Brigadier E. S. W. Peatt, O.B.E. Caslick's operation for perineal repair of the mare: Mr. R. C. Crowhurst, O.B.E. A case of scrapie: Mr. J. Deans Rankin deputising for Dr. W. S. Gordon, C.B.E. Clinical examination of the hen: Mr. E. G. Morris. *Post-mortem* examination of the hen: Dr. J. C. Buxton. *Post-mortem* examination of the pig: Mr. E. G. Morris. Atrophic rhinitis, demonstration of macroscopic lesions: Mr. J. T. Done.

The organisers of Congress are to be congratulated on the very real success of the whole afternoon, and the Association is indebted to the Principal of the Institute through whose courtesy the event was made possible.

Horsefloat Finale

Those in the audience may have been disconcerted by the sudden termination of the proceedings, and it seems only fair to Messrs Pye, whose staff, laid on the television arrangement so efficiently, to mention what happened. A horsefloat entering the Institute was halted just short of the main cable running from the stable block to the principal building. During a long afternoon the driver waited patiently for a sign to proceed. Time went on and on until, at what he felt to be a reasonable hour, the driver started up his engine. Clearly, he felt, somebody had forgotten to tell him that the show was over and he could go ahead. He went, the all-essential cable succumbed to the ponderous weight of the float, and that was that.

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considerably perturbed, as I think you have, by the recent outbreak of foot-and-mouth disease; but we are happy to hear that you think, as we hope, that this outbreak is now reasonably under control. The cereal side is rocking in some of the worst flooding and harvesting conditions that even some of the oldest of us have ever experienced. However, I have no intention of going into a dirge on the state of agriculture at the moment, and I am sure the Joint Parliamentary Secretary of the Ministry of Agriculture will feel very relieved that at least I cannot lay either of these two calamities at their door!"

THE NUTRITION SOCIETY

The 105th meeting of the Nutrition Society will be held on Saturday, October 6th, in the Physiology Lecture Theatre at Guy's Hospital Medical School, St. Thomas Street, London, S.E.1. It will take the form of a joint symposium with the Laboratory Animals Bureau on "The Nutrition of Laboratory Animals."

The speakers and programme are as follows:—10.40 a.m., Introductory remarks by the Chairman, S. K. Kon, PH.D., D.SC., F.R.I.C. (Head, Department of Nutrition, The National Institute for Research in Dairying). 10.45 a.m., W. Lane-Petter, M.A., M.B., (Director, Laboratory Animals Bureau), "Modern Ways of Feeding Laboratory Animals." 11.05 a.m., J. Cassidy, F.R.I.C., "The Commercial Manufacture of Compressed Diets for Laboratory Animals." 11.35 a.m., Miss G. G. Weeks, B.SC. (Laboratory Animals Bureau), "The Assessment of the Diets of Laboratory Animals." 11.55 a.m., Discussion. 12.45 p.m., Lunch.

2.00 p.m., W. F. J. Cuthbertson, B.SC., PH.D., F.R.I.C. (Glaxo Laboratories Ltd.), "The Nutritional Requirements of Rats and Mice." 2.15 p.m., Mrs. P. P. Scott, B.SC., PH.D. (Department of Physiology, Royal Free Hospital School of Medicine), "Problems Encountered in Studying the Nutrition of the Cat (*Felis catus*)." 2.45 p.m., J. S. Paterson, PH.D., M.R.C.V.S. (Superintendent, Allington Farm, Ministry of Supply), "The Role of an Adequate Diet in the Production of Healthy Guinea-Pigs." 3.00 p.m., Discussion.

3.20 p.m., Miss E. M. Hume, M.A. (The Lister Institute of Preventive Medicine), "Monkey Welfare." 3.40 p.m., G. H. Bourne, M.A., D.PHIL., D.SC. (Histology Department, London Hospital Medical College), "Some Aspects of the Nutrition of Dogs and Other Carnivora." 4.00 p.m., D. B. Bellis, B.SC. (Food Research Department, Unilever Ltd), "Some Problems in the Nutrition of the Baby Pig." 4.15 p.m., Discussion. 4.45 p.m., Tea.

Lunch, price 5s. 6d., and tea, price 2s., will be available at the Medical School for ticket holders only. Applications for lunch and tea tickets, with a remittance payable to the Nutrition Society, must be sent to Dr. Amos at The Laboratories, Dudden Hill Lane, London, N.W.10.

CLOSE-CIRCUIT TELEVISION

This picture, taken just before the first demonstration began, shows, left to right: Mr. Sidney Jennings at the microphone, Mr. Gordon Knight and his assistant, Mr. R. Churchill Frost. Mr. Jennings, in introducing the programme, reminded the audience that this was an innovation at any congress of the B.V.A., and, he believed, of any other veterinary congress ever held in this country. He introduced the surgeons and described briefly the operation to be carried out. The photograph below indicates the comparative ease with which the audience in the main building was able to watch the demonstrations by television.

Fowl Typhoid—The Effect of Vaccination on the Natural and Experimental Disease

BY

J. E. WILSON

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DURING the last decade there has been a striking increase in the incidence of fowl typhoid in many regions where for long it has been considered endemic, and the disease has become prevalent in areas in which previously it was unknown. An exception to this general statement is provided by its almost complete disappearance from the Outer Hebrides, where it has been a serious source of loss for more than 50 years (Wilson, 1940).

In the past, the customary recommendations for dealing with an outbreak of the disease have been the immediate slaughter of all ailing birds followed by the application of the agglutination test, formerly by the tube method and latterly by the rapid whole blood test for the detection of carriers ; the vaccination of the remainder of the flock, and the direction of the farmer's attention to the importance of disinfection and improved methods of hygiene, sanitation and general management.

In general, this procedure achieved a reasonable degree of success in controlling the disease, but more recently a change in the attitude of the poultry farmer has become evident in a growing reluctance to make use of the agglutination test, and to carry out adequate disinfection. Greater reliance has been placed on vaccination and/or chemotherapy, and suggestions have been advanced that the disease should be made notifiable.

History of Vaccination

For many years a stock vaccine has been available to poultry farmers from the Ministry of Agriculture's Veterinary Laboratory at Weybridge. It is unnecessary here to describe its preparation, but briefly it consists of broth cultures of *Salm. gallinarum* killed by the addition of formalin and phenol. It has been difficult to assess its real value for, while good results apparently followed its use, in many cases preliminary testing leading to the removal of carriers and improved hygienic procedures must have played an important part in reducing infection, and some of the success ascribed to vaccination may have been largely attributable to these measures.

Small-scale experiments (Wilson, 1946) suggested that a dead vaccine, either stock or autogenous, was of little value and later work confirmed this (Wilson, 1947). While good results were obtained with an attenuated live vaccine there are practical difficulties attendant on its use in the field. Apart from the dangers inherent in the administration of a potentially pathogenic micro-organism, birds vaccinated with live vaccine react to the agglutination test for bacillary white diarrhoea ; this would preclude its use in accredited flocks.

In Northern Ireland some success has been claimed for a dead autogenous vaccine which appeared to give protection for six to eight weeks (Luke, Gordon & Gracey, 1951). According to Hall, MacDonald & Legenhausen (1949) vaccination against fowl typhoid with killed cultures of *Salm. gallinarum* is carried out to a limited extent in the United States of America but there is a dearth of evidence to substantiate its efficacy. These authors reported the results of trials with 15 different dead vaccines, none of which was successful. When the interval between vaccination and exposure was short (two to three weeks) mortality was less than when the interval was over three weeks. After 30 days there was no indication of protection. The present paper chiefly describes trials carried out during 1953 and 1954 which, although unsuccessful, are perhaps worth recording.

Materials and Methods

Vaccine No. 1

This vaccine was prepared from a virulent smooth strain of *Salm. gallinarum* (Fewson) by the method described by Felix (1941) for antityphoid and paratyphoid vaccines in man in which treatment of the organism with 75 per cent. alcohol replaced the earlier method of killing by heat and preserving with phenol. It was standardised so that 1 ml. contained 2,500 by 10^6 organisms.

Vaccine No. 2

Prepared in the same way as No. 1 except that the organisms were killed by heating for one hour at 53° C.

Vaccine No. 3

Prepared by the technique of Freund, Thomson, Hough, Sommer & Pisani (1948). The adjuvant was liquid paraffin and falba but acid-fast bacilli were not added. The vaccine was standardised so that 1 ml. contained 2,000 by 10^6 organisms and the dose used was 0·2 ml.

Vaccines Nos. 4 and 5

Prepared by the same technique as No. 3, using *Salm. enteritidis* var. Jena and *Salm. enteritidis* var. Essen respectively.

Vaccine No. 6

Consisted of a suspension of live *Salm. gallinarum* of the strain used in vaccines 1, 2 and 3, after 70 sub-cultivations on agar at three-day intervals, and was standardised so that 1 ml. contained approximately 1,600 by 10^6 organisms.

Method of Testing

Growing chickens and adult fowls were vaccinated and later challenged by the subcutaneous injection of a standard dose of the homologous strain of *Salm. gallinarum* (1,600 by 10^6). In order to make the conditions of challenge more comparable to those obtaining in a field outbreak of the disease, other vaccinated birds were exposed to infection by contact with recovered birds, or with fowls infected by inoculation with virulent culture. In the case of vaccine 6, birds were also subjected to challenge by oral dosage. Unless otherwise stated, birds were kept in pens on concrete floors. Feeding consisted of dry mash in hoppers and a daily feed of grain scattered in the litter which was peat moss. To ensure maximum exposure to infection droppings were infrequently removed. Vaccine No. 1 was also subjected to a large-scale field trial.

Results

Killed Vaccines

Vaccines Nos. 1 and 2

Several small-scale trials showed that the above vaccines gave no protection against fowl typhoid experimentally induced by the injection of *Salm. gallinarum* even when the dose of vaccine was increased to five times the normal strength or a boosting dose of vaccine was given.

Vaccine 1 was tested under conditions more closely approximating those of a natural outbreak of fowl typhoid by keeping four groups of vaccinated and non-vaccinated fowls for one year in adjacent loose-boxes each having a floor area of 100 sq. ft. Droppings were allowed to accumulate and the litter was replaced infrequently. The individual groups were treated as follows :—

In the first group 17 vaccinated birds and nine controls were placed with six birds, which were injected with a lethal dose of *Salm. gallinarum*. All six injected fowls, three vaccinated fowls and one control fowl died of acute fowl typhoid.

In the second group 24 vaccinated fowls and six controls were placed on litter which had been contaminated by the addition of droppings from affected fowls. Three deaths from fowl typhoid occurred in the vaccinated group and one in the controls. No cases of fowl typhoid developed in the remaining groups which comprised vaccinated birds, controls and natural carriers, and vaccinated and control birds respectively.

It is rather remarkable that under the conditions of the experiment the incidence of fowl typhoid remained so low. It is well recognised, however, that many carriers cease eliminating *Salm. gallinarum* in the faeces and in others elimination is scanty and sporadic but a build-up of infection might have been expected. The presence of a number of actively sick birds provides a more favourable method of spread of the disease.

The number of birds that died is too small to be significant but there is little difference proportionally in the incidence of the disease in vaccinated and non-vaccinated birds in the two groups in which the disease occurred.

Field Trial.—During 1953 almost 45,000 ml. of vaccine 1 were used in a series of field trials. An analysis of the results showed that vaccination provided no significant protection against naturally occurring fowl typhoid, thus confirming the results obtained in the laboratory in the case of the artificially produced disease.

Vaccines Nos. 3, 4 and 5

Following a preliminary trial with vaccine 3 in which 70 per cent. of vaccinated birds survived a challenge 21 days later which killed 90 per cent. of control birds, 57 pullets were vaccinated with 0·2 ml. of vaccine 3, 28 pullets with vaccine 4, and 29 pullets with vaccine 5. Forty-three birds of the same strain were left unvaccinated to act as controls. The birds were divided into two comparable groups, and 16 weeks after vaccination a proportion of each group was inoculated, and the remaining birds left exposed to the infection resulting from contact with the inoculated birds.

The results are shown in Table I.

Not only had none of the vaccines any significant protective effect against the disease produced in the individual bird by the inoculation of virulent culture which probably represented a severer challenge than might be expected under natural conditions, but they also failed to induce sufficient immunity in the remaining birds, to withstand the weight of infection produced by contact with actively diseased birds under circumstances similar to those which might be expected in a severe natural outbreak of the disease.

Immunisation of Mice against Salm. gallinarum

The failure of killed vaccines to protect fowls against fowl typhoid and the absence of any potentiating effect on antibody formation by the falba vaccine suggested inability of the fowl to respond to the stimulus provided by a dead vaccine.

It was decided to test the protective value of vaccine 3 in mice. *Salm. gallinarum* appears to be pathogenic for this species by parenteral injection only ; it was not possible to produce symptoms, of illness by giving drinking water heavily contaminated with *Salm. gallinarum* but the subcutaneous inoculation of 800 by 10^6 organisms was almost invariably lethal. In a pre-

TABLE I

THE EFFECT OF CHALLENGE 112 DAYS AFTER VACCINATION WITH VACCINES 3, 4 AND 5

	Vaccine 3 *S. gallinarum*		Vaccine 4 *S. enteritidis* (Jena)		Vaccine 5 *S. enteritidis* (Essen)		Controls	
	Challenged	Exposed	Challenged	Exposed	Challenged	Exposed	Challenged	Exposed
Number of birds	42	15	18	10	18	11	30	13
Deaths from fowl typhoid	21	10	15	5	12	10	19	10
Mortality (per cent.)	50	66·6	83·3	50	66·6	90·9	63·3	76·9

liminary experiment 30 mice were vaccinated each with 0·2 ml. of vaccine 3 and 34 days later were challenged with varying doses of *Salm. gallinarum*. The results are seen in Table II.

TABLE II
IMMUNISING EFFECT OF VACCINE 3 FOR MICE AGAINST A VARYING CHALLENGE WITH *S. gallinarum*

Challenge dose	Vaccinated		Controls	
	Number injected	Deaths	Number injected	Deaths
S. gallinarum				
200×10^6 ...	10	0	10	5
400×10^6 ...	10	1	10	2
800×10^6 ...	10	2	10	9
Total	30	3	30	16

The vaccine produced a protection of 80 per cent. against a weight of infection which caused a mortality of 90 per cent. in unvaccinated mice and an average protection of 90 per cent. over the three vaccinated groups compared with 50 per cent. mortality in the control groups.

Results of a trial on a larger scale are shown in Table III.

TABLE III
IMMUNISING EFFECT OF VACCINE 3 FOR MICE AGAINST A STANDARD CHALLENGE OF *S. gallinarum* 78 DAYS AFTER VACCINATION

Challenge	Vaccinated		Controls	
	Number of mice	Died fowl typhoid	Number of mice	Died fowl typhoid
S. gallinarum 800×10^6 Subcutaneous injection	20	1	20	18
Suspension in lieu of drinking water for 21 days	20	0	12	0
1 ml. = 400×10^6				

The vaccine provided 95 per cent. protection against a weight of infection causing 90 per cent. mortality in unvaccinated mice.

Both vaccinated and control groups of mice remained healthy when given drinking water heavily contaminated with *Salm. gallinarum* (1 ml. = 400 by 10^6 organisms) for 21 days.

Live Vaccine

Twenty-four fowls 10 to 12 months old were inoculated with vaccine 6 which it will be recalled was prepared from the same strain of *Salm. gallinarum* as vaccines 1, 2 and 3, after 70 subcultivations on agar at three-day intervals. Half of the birds received 1 ml. of vaccine and the remainder 0·05 ml. One-half of each group was housed in pairs in coops and the remainder, singly, in battery cages with wire-mesh floors.

The culture proved to be still virulent and all the vaccinated birds showed typical symptoms of fowl typhoid of varying severity. There was complete cessation of egg production and eight birds died from the acute disease. Deaths were equally divided between the groups receiving the larger or smaller doses of vaccine, and those kept in coops or cages.

All except one of the surviving birds appeared to make a complete recovery ; one bird resumed laying 37 days after vaccination and another seven birds between the seventh and ninth weeks after vaccination. The time of year, which was November, may have lengthened the period of non-productivity. The ailing bird died from chronic fowl typhoid 10 weeks after vaccination.

During the 70 days following vaccination 48 eggs were laid from 10 of which *Salm. gallinarum* was isolated. One bird laid six infected eggs, another two and two others a single infected egg each. *Salm. gallinarum* was not isolated from any of the eggs from the remaining four birds which were laying at this time.

In our hands the feeding of furazolidone to adult carriers has not caused them to become negative to the agglutination test or to be sterilised of salmonella as reported by Gordon & Tucker (1955), but it has been noted that they invariably cease to lay infected eggs and seldom continue to excrete the organisms in the faeces (Wilson, 1955). Accordingly, to determine the fate of the *Salm. gallinarum* in the challenging dose to be given later, the 15 vaccinated birds received furazolidone 0·04 per cent. in the food for 10 days and remained under observation for a period of six weeks before challenge. During this time *Salm. gallinarum* was not isolated from any of 153 eggs laid or from samples of faeces from each bird examined daily for eight days immediately prior to challenge. For this purpose nine vaccinated and nine control birds each received 800 by 10^6 organisms by subcutaneous injection and six vaccinated and six control birds were given 3,200 by 10^6 *Salm. gallinarum* by pipette directly into the crop.

The results are in Table IV.

TABLE IV
EFFECT OF CHALLENGE OF FOWLS IMMUNISED WITH LIVE VACCINE 6

Challenge	Vaccinated		Controls	
	Number injected	Deaths fowl typhoid	Number injected	Deaths fowl typhoid
S. gallinarum 800×10^6 Subcutaneous inoculation	9	1	9	7
S. gallinarum $3,200 \times 10^6$ into crop	6	0	6	6
Total mortality	15	1 (6·6 %)	15	13 (86·6 %)

All the unvaccinated birds showed typical symptoms of fowl typhoid with profuse sulphur-yellow diarrhoea, and 13 out of 15 died from the acute disease.

Except for one bird which developed typical symptoms of fowl typhoid and died from the acute disease six days after challenge all the vaccinated birds remained apparently normal. Egg production, however, ceased two to three days after challenge. In nine of the 12

hens which had been in lay, production was resumed in four to five days and in three birds in 16, 18 and 19 days. *Salm. gallinarum* was isolated from the eggs laid by four birds in 10 of 12, eight of 21 and two single eggs respectively.

Three of these birds had not previously laid positive eggs but *Salm. gallinarum* had been isolated from six of 15 eggs from the remaining bird prior to dosing with furazolidone. There was a sequence of 29 negative eggs and a lapse of 53 days between the laying of the last positive egg before dosing and the first positive egg after challenge. It seems probable that this represents a case of re-infection and not a carry-over from the earlier infection. The results of the bacteriological examination of eggs are summarised in Table V.

TABLE V

BACTERIOLOGICAL EXAMINATION OF EGGS LAID BY A GROUP OF 15 HENS AFTER (A) VACCINATION WITH ATTENUATED CULTURE ; (B) TREATMENT WITH FURAZOLIDONE (0·04 PER CENT.) ; AND (C) CHALLENGE WITH *S. gallinarum*

	Period of observation (days)	Number of hens in lay	Number of hens laying + eggs	Total eggs laid	+ eggs
(A)	70	7	4	48	10
(B)	42	12	0	153	0
(C)	31	12	4	178	20

Individual faecal samples were collected from all birds, daily for 31 days following challenge. In the vaccinated group *Salm. gallinarum* was isolated from the faeces of one bird on three occasions, of one bird twice and of eight birds once. The earliest positive isolation was three days after challenge and the latest 14 days. In the remaining four birds the faeces were negative.

In the control group one faecal sample was positive 24 hours after challenge and within a few days *Salm. gallinarum* had been isolated from the faeces of every bird. One of the two survivors showed intermittent excretion of the organism throughout the period of observation, the other became negative 15 days after challenge and remained so.

Discussion

It is apparent that dead vaccines are incapable of stimulating an effective immunity against fowl typhoid.

The promise of the falba vaccine, which protected 70 per cent. of vaccinated birds against a challenge 21 days later sufficiently strong to kill almost 90 per cent. of untreated controls, was not maintained when the interval between vaccination and challenge was increased to 50 days.

The production of a solid immunity in mice against subcutaneous inoculation of *Salm. gallinarum* by this vaccine is of interest. In view of the report of McLeod (1954) that vaccination of mice with dead cultures of *Salm. dublin* and *Salm. typhi-murium* produced a moderate to a high survival rate against intraperitoneal injection of doses of the respective organisms which killed most of the controls but gave only a small degree of protection against infection by ingestion, attempts were made to produce infection in mice with *Salm. gallinarum* by prolonged administration of the organism in the drinking water, but without success.

The failure of a dead vaccine to induce immunity in fowls against a strong challenge with *Salm. gallinarum* is perhaps not surprising. Although killed vaccines are widely used in protecting man against typhoid, it has been pointed out (Topley & Wilson, 1955) that while T.A.B. vaccination probably affords some degree of protection against slight and occasional exposure to infection it has little or no effect when exposure is severe and frequent ; against paratyphoid it appears to be even less efficacious. It is considered that vaccination would form a poor substitute for sanitary control in a population exposed to a severe and continuous risk of infection.

No conclusions of practical value can be drawn from the experiment with live vaccine, although previous work has shown that an attenuated live vaccine produces a strong immunity (Wilson, 1946, 1947). In the present case the organism comprising vaccine 6 was still sufficiently virulent to cause a mortality of 37·5 per cent. in inoculated fowls (before attenuation a similar dose would have caused 100 per cent. mortality) ; the solid immunity still present in all except one of the birds 112 days after inoculation, must be considered to be associated with recovery from active disease.

Smith (1955) reported that 20 chickens which had recovered from infection nine weeks previously, and 11 chickens infected 10 to 17 weeks previously, remained healthy when exposed to massive challenge. It is the general experience that most recovered birds possess a useful immunity but in some it is of a temporary nature ; when a number of recovered birds are retained for periods of one to two years it is not uncommon for deaths to occur from time to time from virulent fowl typhoid (Wilson, 1954). This has also been observed by Hall *et al.* (1949) who reported that of 55 birds which had reacted strongly for an average period of one year, 14 eventually died of the acute disease.

The absence of symptoms of illness, apart from temporary cessation of egg laying in all except one of the birds inoculated with attenuated culture, when challenged with a lethal dose of *Salm. gallinarum* suggests the possible prophylactic value of a living vaccine in natural outbreaks of fowl typhoid. For the reasons already discussed such a vaccine must have a limited application. In addition the present work suggests that following vaccination there might be a transient excretion of the vaccinal strain in the faeces and eggs. This would not be of great practical importance, however, for the organism would be of low virulence ; moreover, excretion either in eggs or faeces could readily be controlled by routine dosing with furazolidone at a fixed interval after vaccination.

Conclusions

1. Killed vaccines described in the paper provided no protection against experimentally induced fowl typhoid and a large-scale field trial with one of the vaccines showed it to be ineffective in preventing the natural disease.

(*Concluded at foot of col.* 1 *overleaf*)

A Comparison of Two Chloramphenicol Tinctures in the Treatment of Foot-rot in Sheep

BY

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Introduction

THE efficacy of chloramphenicol in spirit by topical application as a remedy for foot-rot in sheep has been established by Stewart (1954a and b) in Australia and by Sambrook (1955) and Penny (1955) in England. These workers all used a 10 per cent. tincture. Harris (1955a) has employed tinctures of 2 per cent. and 0.5 per cent. chloramphenicol, and has shown they possess no advantage over foot-baths of copper sulphate solution. A 2 per cent. tincture was used by Stewart (1954a) who found it cured 41 per cent. of cases, whereas 5 per cent. tincture and 10 per cent. tincture cured 50 per cent. and 87 per cent. of cases respectively in the same field trials.

Experimental

In the trial about to be described an attempt was made to compare a tincture of 5 per cent. chloramphenicol in methylated spirit to which a dapsone compound* was added, with a 10 per cent. chloramphenicol tincture†.

The sheep involved in the trial were 30 cross-bred ewes and their 60 twin lambs which were taking part in an intensive grazing experiment during the summer of 1955 at the Agricultural Research Institute of Northern Ireland. The area grazed was 4 acres divided into three equal enclosures each carrying 10 ewes and 20 lambs. Enclosure A was sub-divided into eight equal paddocks, enclosure B into four equal paddocks, and enclosure C was undivided. The sheep on enclosure A were moved to a fresh paddock each day thus taking eight days to complete the rotation of their available pasture, and the sheep on enclosure B were moved every fifth day to a fresh paddock. Their complete rotation required 20 days. Enclosure C was non-rotational, the sheep being kept on the same area throughout. According to Dayus (1953) this is standard modern practice for the production of fat lambs in New Zealand, where it is known as set stocking.

Foot-rot was first noticed early in May, affecting a few sheep. They did not respond well to treatment which consisted of paring the feet and the use of a copper sulphate type of lotion. On May 24th, 1955, all the sheep in the flock were examined for foot-rot. Each sheep was already marked with an identifying number and note was taken of affected sheep, affected feet, the site of the lesion and its degree of severity. The feet were trimmed where necessary, and those affected with foot-rot were pared to remove all underrun horn and to clean the diseased area. Using a small brush the affected feet of some sheep were painted with the 5 per cent. compound tincture, and the affected feet of others with 10 per cent. chloramphenicol tincture. Note was taken of the tincture applied in each case. Apparently healthy feet were immersed for about 30 seconds in a small container of 5 per cent. formalin, frequently renewed.

Examination and treatment of all three groups of the flock were carried out in a small, grassy pen at one end of the range of enclosures. The sheep were returned to the paddocks immediately after treatment.

* 4 : 4′ — diaminodiphenyl sulphone.

† Alficetyn foot-rot paint.

Fowl Typhoid—The Effect of Vaccination on the Natural and Experimental Disease.—*Concluded.*

2. Inoculation with a partly attenuated culture caused the deaths of about one-third of the birds and induced a solid immunity in the remainder. When the latter were challenged, symptoms of illness did not develop but there was a temporary cessation of egg production. In several birds there was a transient excretion of *Salm. gallinarum* in the faeces and two birds laid a proportion of positive eggs throughout the period of observation.

Acknowledgments.—I wish to express my thanks to Messrs. R. H. Duff, M.R.C.V.S., D. B. Lee, F.I.M.L.T., B. McIntosh, and Miss Macdonald, A.I.M.L.T., for their assistance in the laboratory, and to my colleagues in the Animal Health Division for their help in the field trials.

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Affected sheep were not segregated from those with healthy feet.

At the first complete inspection four ewes and eight lambs had a total of 20 feet affected with foot-rot of varying degrees of severity but all involving under-running of the horn of the hoof. In addition 61 feet of these and other sheep had disease of the soft tissue of the interdigital cleft varying from moistness and flushing to necrosis. Some sheep with interdigital lesions only were as lame, or lamer, than others with under-run hooves. Interdigital lesions were painted with one or other of the tinctures, and the nature of the condition and the tincture used were noted. We do not suggest that all, or even many, of the cases where the lesions were only of the soft interdigital tissue were affected with foot-rot infection, but some may have been. Beveridge (1941) has indicated that foot-rot typically starts interdigitally. We have not included these cases in our tabled results which refer only to cases of foot-rot diagnosed on the clinical grounds of under-running of the horn of the hoof, and disease of the underlying soft tissue, generally associated with the odour typical of the disease. Lameness was not always present. Bacteriological examinations were not made. Feet were not regarded as cured unless the lesion was inactive and healed. Recovering cases were regarded as not cured, and treatment was repeated although in some cases it may not have been necessary, as the infection may have been sterilised by the first application of the tincture.

One week after the initial treatments, and then fortnightly until July 27th, 1955, the feet of all the sheep were examined and treated following the system outlined above. The ewes were removed from the paddocks on June 29th, 1955, but were kept under observation. By July 13th, 1955, a total of 46 sheep, or just over half the flock, had had foot-rot and 64 feet were treated. Twenty-six of the sheep (40 feet) were treated with the 5 per cent. compound tincture, and 20 sheep (24 feet) with 10 per cent. chloramphenicol tincture.

Results

In enclosure A, 18 sheep had foot-rot, 24 feet being involved. Twenty-three sheep were affected in enclosure B, with a total of 35 diseased feet. It was observed at every examination that the ewes and lambs in enclosure C had feet which were better shaped, had less overgrowth, and were drier than the feet of the sheep in the two other groups. Only five cases of foot-rot, none of them very severe, occurred.

Results of treatment for all groups are summarised in the Table.

In enclosures A and B, of feet treated with 5 per cent. compound tincture, four returned for treatment after periods respectively of four, five, six, and six weeks; and four treated with 10 per cent. chloramphenicol tincture returned after four, six, seven, and seven weeks. We have considered these cases to be relapses, rather than cases of reinfection, although they occurred at a time when the level of infection was high. They are considered as having required two or more applications of tincture to effect a cure, and are thus not included with those cured by one application. Additionally, in enclosures A and B, after an early fall in the incidence of infection, the number of cases rose again but declined towards the end of the period of observation. The rise followed a wet period.

TABLE I

Treatment	5% Compound tincture		10% tincture	
	No. of feet	% cured	No. of feet	% cured
Affected	40	—	24	—
Cured by one application	22	55	16	66·6
Cured by two applications	10	80	4	83·3

Reference has been made earlier to the occurrence of lesions interdigitally and only affecting the soft tissues. During the course of the trial, 113 feet were found to be so affected, 58 feet in enclosure A, 50 in enclosure B, and five in enclosure C. Approximately equal numbers were treated with each tincture. One application of either tincture was curative except in six cases, equally divided, which required two applications. In some cases, before treatment, the pain appeared severe and the animals were very lame. Within a few days of treatment the sheep went sound.

Discussion

It must be admitted at once that we failed to eradicate foot-rot from the flock, although the curative effects of two applications of either tincture approach the standards previously reported for 10 per cent. chloramphenicol tincture by Stewart (1954a, 1954b) and for 10 per cent. formalin by Littlejohn (1955) and for an ointment containing 5 mg. oxytetracycline plus 10,000 units polymixin B sulphate by Harris (1956). It would appear that our failure to eradicate foot-rot arose from our inability to carry out the principles laid down by Beveridge (1938). The system of management which involved the intensive grazing of 4 acres by at first 90 sheep, later reduced to 60, precluded segregation of affected from healthy sheep. In enclosure B each paddock was rested for 15 days before the sheep returned to it. This, of itself, could not prevent the spread of infection as both affected and healthy sheep grazed together. Also, the sheep were not put into the clean paddock as soon as they were treated.

There was one period of rather wet, warm weather. Beveridge (1938) has observed that infection on the paddocks dies out more slowly in wet weather. It appears possible that wet, cold weather is more helpful than wet, warm weather in reducing the risk of infection (Stewart, 1954b).

In dealing with the factors predisposing to foot-rot Beveridge (1941) refers to scald, water maceration, and the various causes of traumatic injury, and he discusses the part played by the infective larvae of *Strongyloides papillosus* as a result of their migration through the skin between the digits. It appears from

his experiments that the larvae render the feet more susceptible than wetness alone, and he concludes that they probably play some part as a predisposing factor in the field.

From May 5th, 1955, until October 20th, 1955, rectal faeces samples were examined at 28-day intervals from the sheep in our trial. At the end of August, and subsequently, the abomasa and small intestines of 36 of the lambs were examined for parasites. Three of the faeces samples taken on June 30th, 1955, contained *Strongyloides* eggs. All three samples were from ewes, two of which, E.7 and E.18, were on the non-rotational enclosure C. E.7 had no foot lesion at any time, and E.18 had a very mild moistening and flushing of the interdigital soft issue of the right hind foot on June 1st, 1955. The third ewe, E.21, was from enclosure A. When examined on June 1st, 1955, her left hind foot was affected with necrosis of the interdigital skin and under-running of the axial face of the lateral digit. The condition was not severe and responded to paring and one application of tincture. Faeces samples from the other ewes and from the lambs did not contain *Strongyloides* eggs and *Strongyloides* worms were not found in the 36 lambs examined *post mortem*.

The predisposing factor in our trial appears to have been other than percutaneous invasion by *Strongyloides* larvae.

Once a fortnight, when they went to the pen where their feet were examined, the enclosure C sheep were driven along a grassy passage which was also used by the other sheep both when going to the inspection pen and when they were moved, either daily or every fifth day, from one paddock to another. The frequent use of the passage by the rotationally managed sheep, having a high incidence of foot-rot, presumably resulted in its contamination with the causal organisms. However, the enclosure C sheep had very few affected feet, so it appears that they were less susceptible to the infection. The herbage on enclosure C was extremely short for most of the period of observation as it was non-rotational and no part was rested. This meant that it was drier for a longer time each day than the more lush herbage on the rotational paddocks. Thus, sheep on enclosure C would appear to have had their feet exposed to less moisture than the two other groups of sheep. This was borne out by the appearance of the feet at the routine clinical examinations. It is our opinion that the lower incidence of foot-rot in enclosure C sheep may have been related to the drier nature of their grazing area, and the higher incidence in the other sheep may have been predisposed to by the more lush, moisture-retaining herbage on their enclosures. Suckling (1955) also observed an increase in the incidence of foot-rot in sheep on rotational grazing as compared with those in set stocked areas and suggested that it might be due to scald because of the longer grass.

Conclusion

Our opinion is that a fair comparison has been made of the two tinctures we used, and it appears that a 5 per cent. chloramphenicol tincture containing a dapsone substance gives almost as good results as a 10 per cent. chloramphenicol tincture when the percentage of cases cured by two applications is considered. More cures, however, were obtained by one application of 10 per cent. chloramphenicol tincture than by one of the 5 per cent. compound tinctures. These results probably merit the further experimental use of the compound tincture in an eradication scheme of the type outlined by Beveridge (1938) where segregation of affected sheep can be practised and where clean land is available for the healthy sheep.

Summary

An experiment is described where, in an intensively managed flock, sheep affected with foot-rot were treated with either 10 per cent. chloramphenicol tincture or a 5 per cent. chloramphenicol tincture containing a dapsone substance. Previous reports of the curative value of the 10 per cent. tincture were confirmed, and the other tincture was shown to be almost equally effective. Percutaneous invasion by *Strongyloides papillosus* larvae did not act as a predisposing factor in our trial. It appeared that lush, moisture-retaining herbage made the animals' feet more susceptible to foot-rot than did short, dry herbage.

Acknowledgments.—Our thanks are due to the Trustees of the Agricultural Research Institute of Northern Ireland for providing facilities, to Professor J. Morrison and Professor H. G. Lamont for their interest in the work, to Mr. B. V. Jones, M.R.C.V.S., who arranged for the supply of both tinctures from Allen and Hanbury's Ltd., and to members of the laboratory staff for their valued technical assistance.

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THE HARRY STEELE-BODGER MEMORIAL

The General Secretary reported that the Committee had considered four applications and proposed to make two awards this year. The recipients would be: Dr. W. F. H. Jarrett, of Glasgow, who intended to visit the pathology departments of several of the European schools interested in respiratory and other diseases of the cow and pig, and Dr. R. J. Fitzpatrick, of Bristol, who wished to accept an invitation to carry out research work into ruminant digestion for at least three months, in 1957, at Onderstepoort laboratory. He wished also to meet veterinary workers concerned directly with the chemotherapy and control of protozoan diseases of the Sudan, and of East, Central, and South Africa.

Morbidity and Mortality in a Turkey Flock

BY

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Introduction

AN opportunity occurred during the 1955 rearing season to carry out a small survey of the causes of morbidity and mortality in a flock of about 3,000 turkeys. There is little information in the British literature on the causes of mortality in turkeys and the only paper available, before the survey commenced, was that of Gordon (1955), though another has since been published by Ford (1956). It is intended to repeat this survey, but the results already obtained are of considerable interest and it is felt that publication at this stage may help other workers.

Stock and Husbandry

Assessment of the results requires some knowledge of the flock involved and of the system of management practised on the farm.

1. *Stock*

A total of 3,081 live poults were received, 2,982 as day-olds between May 24th and June 14th, and 99 at nine weeks, on July 6th, 1955.

There were four breeds, purchased from six different owners, consisting of 138 Broad White, 200 American Mammoth Bronze, 617 Beltsville White, and 2,126 Broad Breasted Bronze.

2. *Housing*

The poults were started in wooden, paraffin-heated, " warm-floor " brooders placed in the same slatted-floored verandahs, 36 feet by 9 feet, that the birds were to occupy all their lives. Though somewhat similar to the Motley system, the brooders were of a different type placed inside the verandahs, which were built on the site. The verandahs, with span roofs, were sufficiently high inside to allow easy access to the brooders. Each held approximately 100 birds. As they grew, extensions were fitted to the brooders and the temperature gradually reduced. Artificial heat ceased at 24 days and the brooders were removed from the verandahs when the birds were about eight weeks old.

3. *Watering*

In the early stages, water was supplied in troughs fitted to the sides of the brooders, and, later, from troughs fitted to one side of the verandah. These last were automatically controlled by ball valves served from a mains supply.

4. *Feeding*

As with the water, food was supplied in troughs fitted to the brooder, and, later, in troughs fitted to the outside of the verandah. Apart from whole grain (half wheat and half oats) proprietary foods were used throughout. The poults were started on Starter Crumbs containing 0.001 per cent. nitrofurazone and " not less than 4.1 mega units penicillin per ton." Rearing pellets were introduced at about nine weeks, and Breeders' Grain Balancer pellets and grain at 12 to 14 weeks. Pellets and grain were fed on a 50-50 *ad lib.* basis, the grain being introduced a few days after the pellets. For the last 10 weeks Poultry Grain Balancer pellets replaced the breeders' pellets. Grit was placed at one end of the feeding troughs once weekly from seven days. Food changes, during rearing, were all made at the same time, and thus, for a small number of birds, these occurred at an age two to three weeks younger than the majority.

Methods

The majority of the carcases were forwarded to the laboratory by the farmer, so that they were usually received within 24 hours of death. In addition, the farm was visited whenever an opportunity occurred, and any carcases available were brought back for examination. A routine *post-mortem* examination was carried out on all carcases received, the details of the examination depending on the age and preliminary findings. Whenever bacterial disease seemed possible, cultures were prepared using sheep's-blood agar and MacConkey agar plates. In selected cases other special media were also used, *e.g.* Selenite F. broth and desoxycholate-citrate-agar.

A definite diagnosis was made only where lesions were specific or a causal agent found. Many of the cases under the heading of " no diagnosis " showed pathological changes in various organs, the significance of which was doubtful.

Results

The sex of most of the birds was recorded, as in some conditions this is important, though for the first few days this was accidentally omitted. During the period of the survey—May 25th when the first poults arrived to December 19th when the last turkey was killed—a total of 504 birds died and of these, 420 were examined. The majority of the carcases not examined came from outbreaks, *e.g.* of coccidiosis, for which the diagnosis was known, or were not sent due to transport difficulties.

Expressed as percentages, the above figures show that of the total number of poults received at day-old, 16.3 per cent. died before slaughter at approximately 27 to 29 weeks of age. Of these, 13.6 per cent. were examined, that is 83 per cent. of all losses.

The details of the diagnoses are summarised in the accompanying table. Some of them require further explanation and discussion.

TABLE I
ANALYSIS OF *post-mortem* FINDINGS

Diagnosis	Number	% of total examined	Sex analysis		
			?*	M.	F.
"Chilling"	101	24·04	90	6	5
Coccidiosis	75	17·86	1	38	36
Pecked vent ...	51	12·14		36	15
Nephritis	24	5·71	1	11	12
Blackhead	20	4·76		10	10
Staphylococcal infection	18	4·28		14	4
Aortic rupture ...	7			7	
Impacted rectum ...	6			2	4
Air sac infection ...	6		1	4	1
Deformities	6		1	1	4
Pendulous crop ...	4			3	1
Accidents	3		3		
Swine erysipelas ...	2			2	
Moniliasis	1			1	
Miscellaneous ...	8		1	6	1
No diagnosis ...	88	20·95	6	44	38
Total	420		104	185	131

* ? indicates that the sex was not determined.

1. *Chilling*

This term was used for poults showing the following lesions: retained, unabsorbed, non-purulent yolk sac, pale yellow liver with greatly distended gall bladder, and in most cases congestion of the lungs. All cases were negative to bacteriological examination. This diagnosis usually applied to poults dying within a few days of arrival though it also includes a few, up to 14 days old, with retained non-purulent yolk sacs. Thirty-eight cases of chilling, of which 36 birds died in the first six days, were from one batch of 400 poults which were delayed in transit and rerouted because of the railway strike. The remaining 65 cases were spread over different batches totalling 2,000 poults. It was considered that many cases in this group were weakly poults in the first place.

2. *Coccidiosis*

This disease also occurred widely in the different groups. There were definite outbreaks in three brooders of poults about three weeks old. These were quickly brought under control with sulphaquinoxaline. The remaining cases were mostly odd birds, found dead, in which microscopic examination revealed large numbers of oocysts in smears of intestinal contents; the species responsible were not identified.

It was not possible to assess the value of the nitrofurazone incorporated in the crumbs. It certainly did not prevent definite outbreaks of coccidiosis in three brooders but on the other hand, it may have checked potential outbreaks in other brooders where only odd cases occurred. Certainly sulphaquinoxaline was rapidly effective. Microscopic examination of smears of intestinal contents of poults dying two days after treatment commenced showed only distorted and damaged oocysts to be present. The drug was used as a proprietary 10.32 per cent. solution at the usual recommended rate of 2 fluid ounces to 3 gallons of drinking water spread over eight days; 3 on medicated water, 2 on plain water, and a further 3 on medicated water.

3. *Pecked Vent*

This condition is listed separately as it seemed a definite clinical entity with a restricted age incidence in poults 8 to 10 days old. Though there were individual cases, 41 occurred in three brooders, and 26 in one of them. The cause of death seemed to be persistent pecking of the vent by other poults, though there was no resistance by the poult attacked and death often occurred without any marked damage or haemorrhage. Internally there were no gross lesions, but some birds had a variable amount of urates in the ureters, pieces of grit in the intestine, or impaction of the rectum. The pecking may have been due to increased movement of the vent folds, resulting from some irritation, which showed when the poult bent down to feed. The cause was not clear, but apart from the possibilities of nephritis and constipation, the condition coincided with the first presentation of grit. Application of Stockholm Tar round the affected area probably saved the lives of a number of poults but they had to be detected early for it to be effective.

4. *Impacted Rectum*

This condition is also listed separately, though the number of cases where this was the only lesion was small. The impaction was due to a plug of partially digested food, which distended the rectum to as much as 1 to 1½ centimetres in diameter, and 2 to 3 centimetres in length. It occurred in the same age group as pecked vent and was often associated with this condition. However, in the six cases recorded there was no detectable lesion of the vent and no indication as to the cause. Possibly a physiological constipation was the only factor involved.

5. *Nephritis*

Kidney lesions occurred in birds of all ages up to 20 weeks. Ten cases were associated with the same age group as the two previous conditions but in poults in which there was no pecking of the vent.

6. *Blackhead*

All the cases of blackhead occurred in one verandah and the disease never spread. This was the first outbreak in the eight years during which turkeys have been reared on the farm. In most previous years there had been one, or rarely two, deaths proved to have been due to blackhead. This year, after the second death, a 14-day course of 2-amino-5-nitrothiazole, in the drinking water, was given to the affected group. No further deaths occurred for three weeks, but then they recommenced, and continued intermittently till the birds were killed, in spite of a second course of treatment followed by continuous feeding of the drug at prophylactic levels. The drug was used as a proprietary 16 per cent. solution in the drinking water at the rate of half a fluid ounce to 1 gallon of water and as a 22.5 per cent. premix in the food at the rate of 2 ounces to 56 lb. of food, allowance being made for the whole grain portion of the diet.

7. *Staphylococcal Infection*

Cases, which were widely scattered and sporadic, were mostly of joint infections, though occasionally

a septicaemia was encountered. *Staphylococcus aureus* was isolated from each case.

8. *Air Sac Infection*

This condition appeared to be the cause of death in six poults in four different brooders, but there was no general outbreak and no cases of infectious sinusitis occurred.

9. *No Diagnosis*

As will be seen from the Table, there were three major causes of mortality and 12 other groups for which a diagnosis could be made; but in 88 (21 per cent.) of the cases it was impossible to establish a satisfactory diagnosis. In 10 carcases this was partly due to decomposition or evisceration. Twenty-eight carcases were of birds, 8 to 20 weeks old, which were badly feather pecked on the back and round the tail, but as this also occurred in other birds dying of recognised causes, the significance is doubtful.

Some birds were found to be affected with varying degrees of enteritis, and this was particularly noticeable in birds over 10 weeks old. Macroscopically, this inflammation varied from a slight reddening of the mucosa to severe necrosis and sometimes haemorrhage, the intestine being distended with watery blood. Wet smears from freshly dead, or occasionally killed, sick birds were consistently negative for flagellate protozoa, though in a few cases a few coccidia were seen. The owner medicated the drinking water with oxytetracycline and this appeared to check the deaths. No detailed work was done on the aetiology of the condition, but in view of Ford's report (op. cit.) the subject is raised again, as it may cause considerable losses in older birds.

10. *Other conditions*

Two other conditions, though not a direct cause of mortality, are felt to be worthy of description: there are no detailed references to these in the British literature but they affected a large number of birds and were the cause of much concern to the farmer.

(a) *Enlarged Hock Disorder*. This name has been used for a condition which closely resembles the disease described by Scott (1950) and Scott & Heuser (1954). It occurred only in Broad Breasted Bronze stag birds supplied from one particular breeding flock. At about 8 to 10 weeks slight enlargement of the hock was noticeable and callouses developed on the feet, and in some birds on the skin on the back of the metatarsus below the hock. As the birds grew, the hock enlargement tended to disappear, but the callouses remained. In most cases there was difficulty in walking. Many birds gave the appearance of walking on a hot surface, not wanting to put their feet down or take any weight on them. At a later stage definite leg deformities developed, some birds becoming " bow-legged " and some " knock-kneed," while in others one leg remained normal and the other was twisted to point sideways or backwards. The enlargement was due to a disproportionate increase in the size of the epiphyses of the tibia and metatarsus, and the primary lesion, in most cases, appeared to be a deformity, usually a twisting or bending, of the tibia. There was no evidence of true perosis or rickets and it seemed that the rapid increase in weight of the bird was too much for the joint and lower leg bones to support. The condition was very noticeable in birds over 16 weeks old, when stags were gaining 4 to 8 ounces more bodyweight per week than the hens. Though no birds died, and many improved in the last few weeks, the badly affected birds never made such good carcases as the unaffected stags, or hens of the same batch.

It was not possible to carry out controlled treatment or prevention, but unextracted dried yeast was sprinkled on the pellets fed to the birds in the affected verandahs on a rough basis of 5 per cent. of the ration for a period of six weeks. The less-affected birds improved within about seven days, though this may have been a natural improvement with increasing age.

The condition had many of the characteristics of that described by Scott (1950), but the limitation to birds of one strain suggested some hereditary basis. It is probable that the method of brooding, on wire floors, and rearing, on verandahs, played a part in the development of the condition, but it has not been possible to study birds of the same strain reared on solid floors.

(b) *Fighting*. Fighting of an unusual type caused considerable disruption to the general management of the birds, though no deaths resulted. It occurred among Beltsville White turkeys and only stags were attacked, starting when they were about 23 weeks old. For no obvious reason, many of the birds in a verandah would attack one of their pen mates and there is little doubt would have killed it if it was not promptly removed. These attacks always occurred in daylight. The victims were removed and placed in other accommodation, though this soon became a problem as eventually nearly a quarter of the original 600 birds were involved. On removal, the birds were obviously " off colour " and there was usually a definite change in the faeces, which were either of a greenish-yellow colour and soft consistency or consisted of a large quantity of clear mucus with a little normal faeces attached. Within about two days, without any treatment, the birds became normal. Some of the earlier cases were returned to the verandahs in small groups and no further trouble arose. Most birds were kept separate for the rest of the rearing period, but even when further sick ones were added to recovered groups, the latter did not continue the attacks. Though the birds had been debeaked at about nine weeks old, this had not been done severely enough and the beaks had grown again. For various reasons it was not practicable to attempt debeaking again as a method of control.

None of the turkeys were caponised and there was no clue as to the cause of the original attacks, which were rather in the nature of the executions sometimes seen to take place among wild birds, particularly *Corvidae*. The owner thought there might be some odour given off by an affected bird to which the remainder objected, and this does not seem altogether impossible.

Discussion

There are some interesting features in this survey, particularly in the relationship between management

and disease. The capital cost of verandahs of the size used is comparatively high, even if they are made on the farm, but with the system described, labour is reduced and there is no need to move the turkeys from the day they arrive until they are killed. They never come in contact with the ground and this reduces the rise of outbreaks of coccidiosis and blackhead. If an outbreak should occur, it is restricted to a small group of birds and is not likely to spread. The system also greatly reduced the chance of helminth infestations.

No major bacterial disease occurred on any scale. Swine erysipelas was not unexpected, as it had occurred previously in turkeys on this farm and pigs are kept permanently on the premises. Precautions are taken against the other common bacterial diseases of turkeys, particularly Salmonellosis. The brooders are cleaned and disinfected when no longer required and stored away from the verandahs. The verandahs are cleaned and allowed to " weather " after the turkeys are killed. Though rodent-borne infection might occur with these verandahs it is not possible for rodents to gain access to the food or water troughs or to the verandahs themselves. The poults all came from sources accredited under the Poultry Stock Improvement Plan.

One of the main points is that even when management is good, losses may be significant and unpreventable. In spite of the comparative freedom from the common infectious diseases, mortality was still high and it seems that some, at least, of the modern strains of turkeys may not be suitable for very intensive systems of management. As a result, less-common conditions occur which are more difficult to prevent or treat. It was because some of these, *e.g.* vent pecking, had occurred in previous years, that the survey was attempted. It was felt to be essential to obtain accurate figures of the incidence and importance of these conditions on this particular farm. Though not revealed in the survey, feather pecking was also a problem and was only controlled by debeaking or ringing nearly all the birds. This may be one of the disadvantages of using verandahs, as feather pecking appears to be more common in housing of this type than in any other, particularly if birds feather slowly.

The survey emphasised the necessity of getting outbreaks of coccidiosis and blackhead under control quickly, and with the latter disease confirms the need for continuous medication until killing if 2-amino-5-nitrothiazole is used (Joyner & Kendall, 1955). In connexion with coccidiosis, one important observation was the dislike of poults for strange appliances. When the outbreaks occurred the poults were already using the main water troughs attached to the verandahs. These were shut off and the medicated water put in 2-gallon bucket founts placed in the affected verandahs. The poults would not drink from them, and after about a day, when this was discovered, arrangements were made to shut off the automatic supply and to use the original troughs. Once the troughs were opened, the poults rushed for the water and even though watched for some time, one was pushed in and drowned. In the first 24 hours the 100 or so poults in the verandah drank about 2 gallons of medicated water and continued to take it readily. Turkeys are conservative birds, and if medication is necessary it would seem advisable to use the usual water containers, if this is possible.

Another interesting finding was the occurrence of infectious disease, *e.g.* coccidiosis, in odd birds without any major outbreaks. This was particularly marked with moniliasis and swine erysipelas, and in the case of the former disease confirms the earlier reports of Blaxland & Markson (1953) that there must be some precipitating factor to cause an outbreak. In this connexion it is also of interest to record that in 1954 there was one case of *Aspergillus fumigatus* infection of the lungs and brain, of a poult, in 1955 there were no cases of this disease at all. One of the features of the survey has been the complete absence of respiratory disease, except for the six possible cases of air-sac infection. This absence is usual on this farm and may result from a good housing system and sound management. The odd cases of potentially infectious diseases occurring in some brooders suggest that it may be misleading to diagnose an *outbreak* on the examination of a single carcase without any supporting evidence of flock illness. On the other hand, evidence of such diseases cannot be ignored as it might be the first case of a developing outbreak. For this reason it is important to obtain, from owners, as complete a history as possible when carcases are presented for *post-mortem* examination.

It is not out of place to conclude this discussion with killing results in the surviving birds. The figures, which cover the main groups only, have kindly been supplied by the owner. As killing occupied a period of about two weeks and the order of killing was the order of hatching, most birds were killed at approximately the same age.

The average weights for rough-plucked birds were as follows:—

	Hens	Stags
	lb.	lb.
Bronze	14·33	20·65
Beltsville White ...	10·0	18
Total averages	13·1	19·83
Total average weight, all birds : 16·2 lb.		

There was some variation in the weight of the bronze birds as they came from several owners and consequently varied in type and conformation. The ranges were approximately: hens 10 to 18 lb., stags 18 to 30 lb. However, the Beltsville White birds were very consistent and the weight range was very short, being approximately: hens 9 to 11 lb., stags 17 to 19 lb.

Summary

An attempt was made to investigate and record the causes of morbidity and mortality in a flock of 3,000 turkeys throughout one complete rearing season. The total number of deaths was 504 (16.3 per cent.) of which 420 (13.4 per cent.) were examined *post mortem*. Of this number, no definite cause of death

News and Comment

ELECTION OF PRESIDENT FOR 1956-7

At the Annual General Meeting of the Association, held on September 19th, at Royal Leamington Spa, Mr. E. R. Callender, O.B.E., was formally elected to the Presidential office. In addressing the meeting, Mr. Wilkinson said:—

"It is Council's unanimous recommendation that Mr. Ernest R. Callender, O.B.E., be our President for 1956-7. I have particular pleasure in putting his name forward, and I can tell you that he has been a very great help during the past year. He is a man utterly honest in the way he approaches problems, and he is not afraid of modifying a previously expressed opinion. He is a senior officer of the veterinary staff of the Animal Health Division, and whenever I have spoken of my great fortune in having him at my elbow I have always received a warm reply. I now propose that Mr. Callender be our next President."

The proposition was carried with enthusiasm, and the President congratulated Mr. Callender on his election.

In reply Mr. Callender said: "You have to-day passed judgment on me. I would remind you, however, that my sentence does not commence until Saturday when I shall have a little more to say. I will content myself by thanking you with all sincerity for the very great honour you have done me in electing me to this high office and you, Mr. President, for your kindly references. If I can justify half of them I shall be a very happy man at this time next year. May I assure you that at all times I shall strive to uphold this great Association which means so much to all of us?"

In connexion with Mr. Callender's election to the Presidential chair, it was gratifying to note the remark made at the annual banquet on the same evening by the Guest of Honour, Lord St. Aldwyn, Parliamentary Secretary to the Ministry of Agriculture. He said that his Ministry took a personal pride in the President-elect, because he was one of their own Superintending Veterinary Officers.

The Annual General Meeting will be reported in full in the next Supplement.

THE DUKE OF DEVONSHIRE FORMALLY OPENS CONGRESS

The platform, reading from left to right: Mr. S. V. Collard, President of the Midland Counties Division; Mr. H. E. Bywater, Honorary Treasurer; Professor A. Robertson, Senior Vice-President; Mrs. Wilkinson; the Duke of Devonshire; the President, Mr. Edward Wilkinson; Mr. E. R. Callender, President-Elect; and Mr. J. M. Ingram, Honorary Secretary (the Deputy Mayor on the Duke's right was screened by the reading desk).

ELECTION OF VICE-PRESIDENTS AND OTHER OFFICERS

In the course of the Annual General Meeting the President said that the election of the first Vice-President was automatic; by the Articles of Association

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could be established in 21 per cent. of those examined, and 15 different causes, most of which were not preventable, were recognised in the remainder.

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———, & HEUSER, G. F. (1954). Papers presented to 10th World's Poultry Congr., Edinburgh ; p. 255.

the retiring President was Senior Vice-President for the ensuing year.

With regard to the second Vice-President, Mr. Wilkinson said: " It gives me great pleasure to tell you that Council recommend unanimously that Mr. John McC. Ingram be elected as Junior Vice-President and President-elect of the Association. John Ingram has been Honorary Secretary of the Association for three years and has an excellent working knowledge of the Association's business. Although he has a busy practice he has allowed his name to go forward. We all know his sterling worth and his record of service to the Association which goes back a considerable number of years. I have much pleasure in proposing that he be elected Junior Vice-President for 1956-7."

Dr. R. F. Montgomerie then said: " It is unfortunate that Mr. Taylor, of Sevenoaks, President of the South-Eastern Division, is not with us to-day. and perhaps I may, as a member of John Ingram's home Division, be allowed the privilege and pleasure of seconding this proposition. I imagine that there are some among us who would think that the fact that John Ingram is an Aberdonian is sufficient commendation. I suppose there are some among us who would think the fact that he is a graduate of Glasgow Veterinary College is sufficient commendation. But we of the South-Eastern Counties are ready to suggest that the best commendation of all is the fact that he is a prominent practitioner in an area where the quality of practitioners is known to be very high; and among them John Ingram stands out as a prince. It is an area in which Past-Presidents seem to be multiple, and we shall be delighted in due course, if this proposition is approved by the meeting, to welcome John Ingram to that very distinguished company.

" His service to the British Veterinary Association has been mentioned by the President, but I want to put to you that there is another commendation which I must put forward. I think most of us will know that when Mr. Ingram came to Oxted a little time before the war he brought into that practice a high level of skill and something much more important—a charming lady.

" You have in John Ingram one for whom his colleagues have the highest regard, one they commend to you for this appointment, and it is my privilege and pleasure on behalf of his fellow veterinary surgeons in his area to second the proposition."

Election of other Officers

The President then said: " I should explain why we have once again asked Mr. Bywater to defer his ' threatened ' departure; it was thought inadvisable to have too many changes among the officers at one time. We shall have a new Honorary Secretary this year, and so, under pressure, Mr. Bywater has agreed to carry on for another year and we are very much indebted to him."

Mr. Wilkinson went on: " Council's recommendation for Honorary Secretary is Mr. D. F. Oliver. I feel we are extremely fortunate in persuading him to take this office. During the coming year there will be three practitioners among the Officers and we have not been in that position for some time. I propose that Mr. D. F. Oliver be elected Honorary Secretary."

Mr. G. M. G. Oliver seconded the proposal, which was carried with applause.

THE CIVIC RECEPTION

The Deputy Mayor of Royal Leamington Spa and Mrs. Lucas are receiving Mr. Glover, Principal of the Royal Veterinary College, and Mrs. Glover.

FOOT-AND-MOUTH DISEASE

The area described in the schedule below is declared to be an Infected Area for the purpose of preventing the spread of foot-and-mouth disease:—

IN THE COUNTY OF BUCKINGHAM

The Borough of Aylesbury.

The Petty Sessional Division of Brill.

In the Petty Sessional Division of Buckingham County: The parishes of Twyford, Steeple Claydon, Middle Claydon, Charndon, Poundon, Marsh Gibbon, and Edgcott.

In the Petty Sessional Division of Winslow: The parishes of East Claydon, Granborough, Hogshaw, Quainton, Pitchcott, Whitchurch, Oving, Creslow, and North Marston.

In the Petty Sessional Division of Aylesbury: The parishes of Westcott, Waddesdon, Upper Winchendon, Lower Winchendon, Cuddington, Dinton, Haddenham, Kingsey, Aston Sandford, Longwick-cum-Ilmer, Hulcott, Princes Risborough, Lacey Green, Great and Little Hampden, Great and Little Kimble, Ellesborough, Stone, Hartwell, Stoke Mandeville, Weston Turville, Bierton with Broughton, Weedon, Hardwick, Quarrendon, Fleet Marston, Wendover, The Lee and Great Missenden, and so much of the parish of Bledlow-cum-Saunderton as lies within the petty sessional division.

In the Petty Sessional Division of Wycombe (County): The parishes of Radnage and Stokenchurch and so much of the parish of Bledlow-cum-Saunderton as lies within the petty sessional division.

IN THE COUNTY OF OXFORD

In the Petty Sessional Division of Bicester: The parishes of Blackthorn, Piddington, Arncott, Ambrosden, Morton and Fencott, and Murcott.

In the Petty Sessional Division of Bullingdon: The parishes of Horton-cum-Studley, Beckley and Stowood, Stanton St. John, Risinghurst and Sandhills, Forest Hill with Shotover, Holton, Waterperry, Thomley, Waterstock, Wheatley, Horspath, Garsington, Stadhampton, Denton, Little Milton, Cuddesdon, Great Milton, Great Haseley, Tetsworth, Tiddington with Albury, Thame, and Towersey.

In the Petty Sessional Division of Watlington: The parishes of Chalgrove, Pyrton, Cuxham with Easington, Stoke Talmage, Shirburn, Lewknor, Wheatfield, Adwell, Aston Rowant, Sydenham, Crowell, and Chinnor.

IN THE COUNTY OF LEICESTER

In the Petty Sessional Division of Lutterworth: The parishes of Westrill and Starmore, Swinford, and Catthorpe.

IN THE COUNTY OF NORTHAMPTON

The Borough of Daventry.

The Petty Sessional Division of Daventry.

In the Petty Sessional Division of Northampton: The parishes of Cold Ashby, Thornby, Guilsborough, Great Creaton, Hollowell, Ravensthorpe, Spratton, Chapel Brampton, Church Brampton, Holdenby, East Haddon, Duston, Harlestone, Althorp, Brington, Harpole, Upton, Kislingbury, Upper Heyford, Nether Heyford, and Bugbrooke.

In the Petty Sessional Division of Towcester: The parishes of Pattishall, Cold Higham, Litchborough, Blakesley, Maidford, Adstone, Woodend, and so much of the parish of Weston and Weedon as lies to the north of the road running from Wappenham via Weston to Culworth, excluding the said road.

In the Petty Sessional Division of Brackley: The parishes of Boddington, Aston le Walls, Chipping Warden, Eydon, and Moreton Pinkney.

IN THE COUNTY OF WARWICK

The Borough of Rugby.

In the Petty Sessional Division of Rugby: The parishes of Newton and Biggin, Clifton upon Dunsmore, Long Lawford, Willoughby, Dunchurch, Thurlaston, and Bourton on Dunsmore.

In the Petty Sessional Division of Southam: The parishes of Birdingbury, Leamington Hastings, Grandborough, Wolfhampcote, Lower Shuckburgh, Upper Shuckburgh, Stockton, Napton-on-the-Hill, Upper Radbourn, Lower Radbourn, Priors Hardwick, Priors Marston, Southam, Ladbroke, and Stoneton.

IN THE COUNTY OF DERBY

The Petty Sessional Division of Belper.

In the Petty Sessional Division of Alfreton: The parish of South Wingfield.

In the Petty Sessional Division of Ashbourne: The parish of Hulland Ward.

In the Petty Sessional Division of Ilkeston: The Parishes of Heage, Pentrich, Ripley, Codnor and Loscoe, Denby, Horsley Woodhouse, Smalley, Stanley, Horsley, and Morley.

In the Petty Sessional Division of Derby: The parishes of Ravensdale Park, Weston Underwood, Kedleston, Quarndon, Allestree, Darley Abbey, Little Eaton, and Breadsall.

In the Petty Sessional Division of Wirksworth: The parishes of Idridgehay and Alton, Biggin, Kirk Ireton and Callow, and so much of the parish of Wirksworth as lies to the south and east of the road (B.5035) running from Carsington via Wirksworth to Crich including the said road.

The area described below will cease to be an Infected Area for the purpose of preventing the spread of foot-and-mouth disease on October 1st, 1956:—

IN THE COUNTY OF GLOUCESTER

In the Petty Sessional Division of Cirencester: The parishes of Down Ampney, Somerford Keynes, and Poole Keynes.

In the Petty Sessional Division of Fairford: The parish of Kempsford.

IN THE COUNTY OF WILTS.

In the Petty Sessional Division of Cricklade: The parishes of Ashton Keynes, Leigh, Latton, Cricklade, Marston Meysey, Braydon, and Purton.

In the Petty Sessional Division of Malmesbury: The parishes of Oaksey and Minety.

In the Petty Sessional Division of Swindon: The parishes of Castle Eaton, Hannington, Blunsdon St. Andrew, Haydon Wick, Stanton Fitzwarren, Inglesham, Highworth, and South Marston.

The area described in the Schedule below will cease to be an Infected Area for the purpose of preventing the spread of foot-and-mouth disease on October 4th, 1956:—

IN THE COUNTY OF GLOUCESTER

The Borough of Tewkesbury.

The Petty Sessional Division of Tewkesbury.

In the Petty Sessional Division of Cheltenham: The parishes of Gotherington, Bishop's Cleeve, Woodmancote, Swindon, Uckington, and Boddington.

IN THE COUNTY OF WORCESTER

In the Petty Sessional Division of Evesham: The parishes of Beckford, Conderton, Overbury, and Kemerton.

In the Petty Sessional Division of Pershore: The parishes of Bredon's Norton and Bredon.

In the Petty Sessional Division of Upton-on-Severn: The parishes of Strensham, Queenhill and Bushley, so much of the parish of Longdon as lies to the east of the road (B.4211) running from New Bridge Green via Longdon to Cold Elm excluding the said road, and so much of the parish of Ripple as lies to the south of the main road (A.440) running from Upton upon Severn to Baughton excluding the said road.

THE PRESIDENT'S RECEPTION AND DANCE

The last major social event of Congress week, the President's reception and dance, was held at Chesford Grange on September 21st. A very large number of guests were received by Mr. and Mrs. Wilkinson, and the evening was a great success. It had the happy effect of setting a seal upon the atmosphere which had been created from the beginning of the week by the President and his lady—that of a warm and happy family party.

The amenities of the evening were all excellent of their kind: a good floor, a good band, and a delicious supper. Everyone present, from the newest graduates to the most senior members of the profession, delighted in the genial cordiality of their hosts, and it is fair to say that this last day of Mr. Wilkinson's period of office was a fitting termination to the great contribution he and Mrs. Wilkinson have made to the Association during their year.

CONGRESS GOLF TOURNAMENT

The men's competition was won by Mr. C. J. Pugh, of Newport. This was a narrow victory, the runner-up, Professor C. Formston, losing by only half a stroke over the last nine holes. Each player returned a net 76.

There were no entrants for the ladies' competition.

DATE OF NEXT YEAR'S CONGRESS

We are advised that next year's Congress, which is to take place in Cambridge, will be held from August 25th to 31st.

THE PRESIDENT'S RECEPTION

Mr. and Mrs. Wilkinson are photographed just before receiving their guests.

A WELCOME TO OFFICE

Mr. and Mrs. Ingram toast the new Honorary Secretary and Mrs. Oliver.

BEAUTY

Among the many young and attractive guests whom Mr. and Mrs. Wilkinson welcomed to their Reception were (left to right): Mrs. Gimber, Mrs. McLauchlan, Miss Weston, Mrs. Henderson and Miss Kirkwood

AND BRAINS

Among the many distinguished guests who were received were (left to right): Mr. Glover, Professor Pugh, Professor Robertson, Mr. J. N. Ritchie and Mr. Sidney Jennings.

MISS ROSA SMITH

The engagement is announced of Miss Rosa Smith, assistant to the General Secretary at the Association's headquarters, to Mr. James A. Brown, M.R.C.V.S. Miss Smith is known personally to so many members of the profession that there will be a host of well-wishers from all parts of the country at the news of her engagement.

As most people know, she has given the B.V.A. 16 years of most conscientious and efficient service, notably during the organisation of each annual Congress, and as secretary to the Technical Development Committee. She will be very much missed by her colleagues, and by a host of veterinary surgeons and others who have come to look upon her as guide, philosopher, and friend in every difficulty. On behalf of all these colleagues and friends, we wish her and Mr. Brown every happiness.

COMING EVENTS

October

4th (Thurs.). General Meeting of the Central Division, B.V.A., at the Royal Veterinary College, Camden Town, N.W.1, 6 p.m.

Autumn Meeting of the North of Scotland Division, B.V.A., in the Drumossie Hotel, Inverness, 2.30 p.m.

6th (Sat.). Joint Meeting of the Nutrition Society and The Laboratory Animals' Bureau at Guy's Hospital Medical School, St. Thomas Street, London, S.E.1, 10.40 a.m.

10th (Wed.). Meeting of the Supplementary Veterinary Register Division, B.V.A., at 7, Mansfield Street, London, W.1, 2 p.m.

12th (Fri.). Meeting of the Welsh Branch, B.V.A., at the Belle Vue Hotel, Aberystwyth, 2.30 p.m.

General Meeting of the North of Ireland Division, B.V.A., in the Orchid Room of the Midland Hotel, Belfast, 8 p.m.

16th (Tues.). Joint Meeting of the Essex Division, B.V.A., with the Essex Branch of the N.F.U. at the Essex Institute of Agriculture, Writtle, Nr. Chelmsford, Essex, 7.30 p.m.

17th (Wed.). Meeting of the Section of Comparative Medicine, Royal Society of Medicine, at the Society's House, 5 p.m.

Meeting of the Society of Women Veterinary Surgeons at the Midland Hotel, Birmingham, 2.15 p.m.

18th (Thurs.). Ordinary General Meeting of the South Eastern Division, B.V.A., at the Royal Star Hotel, Maidstone, 2.30 p.m.

19th (Fri.). Annual Dinner-Dance of the South Wales Division, B.V.A., at the Seabank Hotel, Porthcawl.

Meeting of the Mid-West Division, B.V.A., at the Berkeley Café, Clifton, 2.30 p.m.

24th (Wed.). Meeting of the R.A.V.C. Division, B.V.A., at the Zoological Society of London, Regent's Park, London, N.W.1, 12 noon.

26th (Fri.). Meeting of the Society for the Study of Animal Breeding at the Royal Veterinary College, Camden Town, N.W.1.

CORRESPONDENCE

The views expressed in letters addressed to the Editor represent the personal opinions of the writer only and their publication does not imply endorsement by the B.V.A.

Telephone Charges and Automatic and Manual Exchanges

Sir,—We are writing in support of Miss Joshua's description of the permanent transfer of calls system. The arrangement has been used in this practice for several years, in connexion with an automatic exchange in the town and manual operation in the surrounding districts. In this neighbourhood, it appears that when the transfer system is in action, calls for the number concerned are intercepted and re-routed to the supervisor's desk, where there is a list of transferred numbers and of the numbers to which calls for each of these is to be re-routed. Unfortunately, there is no distinction between such calls and many others concerned with enquiries and complaints. If the supervisor is dealing with a verbose and angry complainer, or with a long enquiry, the long delay in answering the transferred call occasionally results in the caller assuming that there is no answer. We have had considerable discussion with chief supervisors on this factor that defeats the object of the transfer. If the supervisor in question could just answer the phone and ask the caller to wait, the difficulty would be largely overcome. We agree with Miss Joshua that an approach by the B.V.A., with, may we suggest, parallel approach by the B.M.A., might and should result in a better system.

Yours faithfully,

E. P. BARRETT,
J. NICOL.

28, Stoke Road,
Guildford.

September 20th, 1956.

The Husbandry and Diseases of Pigs

Sir,—May I make one or two observations about this recently issued publication? I notice that for the treatment of agalactia, no mention is made of injecting 500 I.U. of a luteinising hormone, although some people prefer it to pituitary because of its lasting effects.

In the treatment of paratyphoid I should like to have seen a note on sulphadimidine from which I have had really good results. Pigs which could not stand, and which, under ordinary treatment, would have died in 24 hours, have recovered. They seldom have required more than two injections. The same applies for gut oedema; no mention is made of sulphadimidine, and although it is not 100 per cent. effective, I have found it saved 75 per cent. of pigs suffering from this condition.

So far as my experience goes, penicillin and sulphadimidine are the two most useful drugs for pigs, which respond to them remarkably well.

Yours faithfully,

G. C. LANCASTER.

Eastwick House,
Evesham,
Worcs.

September 3rd, 1956.